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APPLICANT(S): LAYLEY, Martin Richard et al.

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FOR: **A WIRELESS COMMUNICATION DEVICE AND A METHOD FOR CONTROLLING THE SAME**

DATED: September 29, 2003

Commissioner for Patents
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Sir:

Enclosed is a certified copy of United Kingdom Patent Appln. No. 0221457.5 filed on September 16, 2002, from which priority is claimed under 35 U.S.C. §119.

Respectfully submitted,

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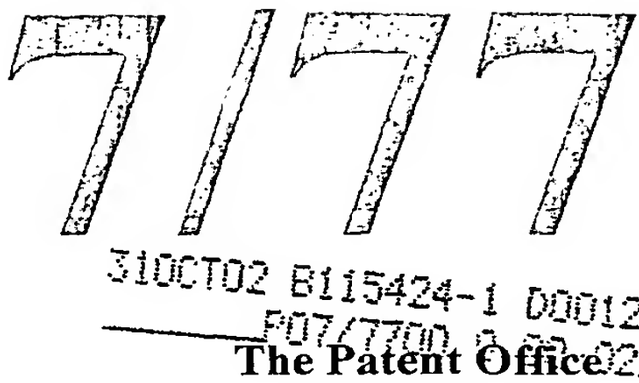

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Statement of inventorship and of right to grant of a patent

1.	Your reference	J00044626GB
2.	Patent application number *(if you know it)*	0221457.5
3.	Full name of the or of each applicant	Samsung Electronics Co., Ltd.
4.	Title of the invention	A WIRELESS COMMUNICATION DEVICE AND A METHOD FOR CONTROLLING THE SAME
5.	State how the applicant*(s)* derived the right from the inventor*(s)* to be granted a patent	By virtue of the employment of the inventor by Samsung Electronics (UK) Ltd, and an agreement between Samsung Electronics (UK) Ltd and the applicant, Samsung Electronics Co., Ltd.
6.	How many, if any, additional Patents Forms 7/77 are attached to this form? *(see note (c))*	
7.		I/We believe that the person*(s)* named over the page *(and on any extra copies of this form)* is/are the inventor*(s)* of the invention which the above patent applications relates to. Signature RGC Jenkins Date 30 October 2002 R.G.C JENKINS & CO.
8.	Name and daytime telephone number of person to contact in the United Kingdom	Mr. Guy Tucker – 020 7931 7141

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1. Your reference — J00044626GB

17SEP02 E748636-3 D02829
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2. Patent application number
(The Patent Office will fill in this part) — 0221457.5

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Patents ADP number *(if you know it)* — 7514470 02

If the applicant is a corporate body, give the country/state of its incorporation — Republic of Korea

4. Title of the invention — A WIRELESS COMMUNICATION DEVICE AND A METHOD FOR CONTROLLING THE SAME

5. Name of your agent *(if you have one)* — RGC Jenkins & Co.

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Patents ADP number *(if you know it)* — 03966736001

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Request for preliminary examination and search *(Patents Form 9/77)*	1
Request for substantive examination *(Patents Form 10/77)*	
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11. I/We request the grant of a patent on the basis of this application.

Signature R.G.C. JENKINS & CO Date 16 September, 2002

12. Name and daytime telephone number of person to contact in the United Kingdom: Mr. Guy Tucker – 020 7931 7141

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A WIRELESS COMMUNICATION DEVICE AND A METHOD FOR CONTROLLING THE SAME

The present invention relates to a wireless communication device and a method for controlling the same, in particular a wireless communication device and a method for controlling the same in order to potentially utilise a peripheral device.

A large number of wireless communication devices are available for consumers, such as, for example, mobile telephones, personal digital assistants (PDAs), digital cameras, keyboards, computer mice, security devices and such like. Even car keys and household appliances may be equipped with wireless communication devices able to communicate with other devices. There is a requirement to set up communication channels to transfer data between such devices and peripheral devices, e.g. printers, backup devices, data sources and data targets.

For example, a mobile telephone receives incoming text messages via the Short Message Service (SMS) of GSM. The user may wish to print such messages to keep a permanent record.

Data held on wireless communication devices may be in forms other than SMS messages, such as for example, calendar entries, emails, data files or streams of communication data. SMS messages, calendar entries and emails may require a printing device to provide hard copies of the data, whereas it may also be a requirement to initiate a backup of data in which

case disk drives and associated backup devices will be required as the peripheral device. Also, it may merely be a requirement that the device can communicate with a separate peripheral device, for example car keys and household appliances to communicate with a car's security system and timing devices respectively.

Any data transfer between a wireless communication device and a peripheral device will involve setting up a communications link between the two devices, as discussed in PCT application WO 01/50713. Communication links using Bluetooth or Infrared, such as those created by IRDA (Infrared Data Association), are used to link mobile phones to printers. This allows a text message to be printed out to a printer in range.

Many wireless systems today allow users to use local wireless networks to share peripheral devices connected to the network, for example using Bluetooth technology.

Due to the flexibility of local wireless networks and the fluidity of devices entering and leaving the network, routes can become unstable. Due to this fluidity it is a requirement that systems must discover what devices are attached to the network, and determine what the route is through the network to these devices, at periodic intervals.

One known method of locating peripheral devices on a local wireless network is to constantly search for the peripheral device. However, this would have the disadvantage of using a great deal of battery power within the wireless communication device, since constant IR or radio broadcasts and

receptions are required, and hence would not be acceptable for a mobile phone where battery life is at a premium.

Another method is to locate a peripheral device required by the user of the wireless communication device at the time the operation involving that device (i.e. printing) is instructed by the user. However, to run through all the steps of detecting an available peripheral device before being able to utilise that device can take a long time. For example, it may take several minutes to initiate communications, or to receive a message informing the user that the required peripheral device is not available. The precise time taken depends on the complexity of the network. The user would thus have a wait of uncertain length, at the end of which he may be told that the operation cannot be performed because the required device is not connected to any network within range.

The present invention therefore intends to overcome or at least alleviate some or all of the aforementioned problems.

STATEMENT OF INVENTION

According to a first aspect of the present invention, there is provided a wireless communication device comprising a search means and a detection means, wherein the search means searches for a peripheral device when the detection means detects that the peripheral device is likely to be utilised by the wireless communication device.

According to a second aspect of the present invention, there is provided a method of controlling a wireless communication device, including

the step of searching for a peripheral device upon detection that the peripheral device is likely to be utilised by the wireless communication device.

It is necessary to conserve the battery power of wireless communication devices due to their limited capacity. The present invention finds a fine balance between using battery power constantly in order to locate peripheral devices that are available for use, and waiting a long time for a connection to a peripheral device to be made at the time when the user requests the peripheral device to be utilised.

BRIEF DESCRIPTION OF THE DRAWINGS

Specific embodiments of the present invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a flow chart according to an embodiment of the present invention;

Figure 2 shows a flow chart according to a further embodiment of the present invention;

Figure 3 shows a piconet used in an embodiment of the present invention;

Figure 4 shows a scatternet used in an embodiment of the present invention;

Figure 5 shows a mobile telephone connection diagram according to an embodiment of the present invention;

Figure 6 shows a data flow diagram according to an embodiment of the present invention.

Figure 7 shows a wireless communication device according to an embodiment of the present invention.

Figure 8 shows a wireless communication device according to a further embodiment of the present invention.

DESCRIPTION OF FIRST EMBODIMENT

Figure 1 shows a general flow chart for a method of controlling a wireless communication device according to an embodiment of the present invention. In step S121 of Figure 1, it is determined whether a peripheral device may be utilised in the near future by a wireless communication device. For example, reception of a new SMS message by a mobile telephone may mean that the mobile telephone (the wireless communication device) may utilise a printer (the peripheral device) in the near future to print the SMS message.

If a peripheral device may be required, a search is carried out for a local wireless network, as shown in step S123. If a local wireless network is available at step S125, a search for a peripheral device on the network is carried out in step S127, otherwise the process returns to step S121. If a peripheral device is available in step S129, a "peripheral device available" flag is set, as shown in step S131.

More specifically, Figure 5 shows a system incorporating a mobile telephone device capable of receiving SMS messages.

A service provider 505 has a transceiver 507 that is capable of transmitting SMS messages (e.g. a Base Transceiver Station (BTS) carrying messages from a Short Message Centre (SMSC) in a GSM network) via an air interface 503 to a mobile telephone 501. The mobile telephone 501 has a main transceiver 509, which is capable of transmitting and receiving SMS messages to and from the service provider 507 using the mobile telephone network. The incoming SMS message may be received and stored by a Subscriber Identity Module (SIM) card 511 that is housed within the mobile telephone 501 along with a controller 515, E^2PROM 517 and an auxiliary transceiver 519 for communications on a local wireless network e.g. a Bluetooth ad-hoc network.

Upon reception of a new SMS message by the mobile telephone, the auxiliary transceiver 519 of the mobile telephone determines whether a local wireless network is within range to enable the mobile telephone to communicate with the network and determine if a printer is available.

Figure 2 shows a flow chart indicating the specific steps required to connect a mobile telephone with a printer in this embodiment.

At step S221 a check is made to see if any new SMS messages have been received by the mobile telephone. If no new SMS messages are received, then the process is looped back to the start to continuously check for any new messages. However, if a new SMS message has been received at step S223, then a search for a local wireless network is carried out at step

S227. If a local network is available at step S229 then a search is carried out for a printer on the local network at step S231.

If a printer is available at step S233 then a "printer available" flag is set at step S237. However, if a printer is not available at step S233 then a "printer available" flag is cleared at step S235. If the "printer available" flag is set, then a menu option is provided in the user interface on the mobile telephone for the user to select "print", for example, when the message is read. This option is only available to the user if a printer is available on the network. As the search for the printer is run concurrently while the user is looking at the incoming message the option will usually be available for selection by the time the user is ready to print and since the search is initiated only when it is predicted that a printer may be required, then battery power is saved in searching for a printer.

The mobile telephone is not within direct range of a printer in this embodiment, and so must look for a suitable local wireless network as discussed above. A communications link must be set up between the mobile telephone and a printer located on the network.

In this embodiment the local wireless network is a network such as a Bluetooth piconet depicted in Figure 3, but may be any other suitable wireless network.

Piconet or personal area networks (PANs) are used as a method of connecting a network of devices in an ad-hoc manner. The connection to the network is able to support up to approximately eight wireless devices. It is

then possible to connect in a group, in an independent and non-synchronised manner, up to ten piconets into a scatternet. These networks allow wireless communication devices to be connected on an ad-hoc basis i.e. in a temporary manner with a constantly changing infrastructure and without any one device being in overall control of the network.

Wireless networks enable devices to be interconnected without the need for adding infrastructure such as twisted-wire pair cables throughout an area. The total range of wireless networks can be vast, even though each device has a limited transmission or reception range. This is due to the nodal format of the networks, where each node or device can be used as a junction allowing data to be transmitted from or to a node, or allowing data to merely pass through a node.

Referring to Figure 3, wireless devices 301 are shown connected to peripheral devices 303 via wireless communication links 307. Due to different conditions around each device the duration and distance of possible communication links varies. Each of the devices, both the wireless communication devices and the peripheral devices are considered as nodes within the ad-hoc network. Each node within the network may be a mobile router, a data source or a data destination, or any combination thereof. Therefore, for data to be transmitted from a first node to a second node, a route needs to be determined. The route may pass through any number of other nodes. These will vary, of course, as devices move, and as they leave and join the local network.

An example of a scatternet as used in Bluetooth technology 401 is shown in Figure 4. A scatternet incorporates several piconets 305 discussed above.

In the ad-hoc network when the wireless communication device, such as a mobile telephone, wishes to connect with a peripheral device, such as a printer, firstly the mobile telephone has to locate the network, and then locate the printer on the network. Finally, the mobile telephone must find a route to the printer via nodes in the network so as to connect the two devices via the route found.

If the local network is a Bluetooth network, the Bluetooth device will start a detection process to find other suitable devices in the area by transmitting an *inquiry* packet. Any devices within the range of the system, usually about 10 meters, will then respond and reveal their presence by sending a message containing their unique address back to the device sending the *inquiry* packet. The message will also include information on available services for use. This information may also include details concerning how to connect to the device.

The Bluetooth standard operates in the 2.4 GHz band and uses a frequency-hopping scheme as is well known within the art.

Figure 6 shows a data flow diagram indicating the two processes that are carried out; a network printer detection process and an SMS messaging process. The two processes communicate by means of semaphores, flags or global variables, as is well known within the art and will not be discussed

further. The printer detection method may be by means of the NDIS protocol, the Bluetooth service discovery profile, or some other suitable methods as are well known within the art and will not be discussed further.

As the devices connected to the local wireless network are so fluid in terms of being easily removed from and moved around the network, it is preferable that a search for a peripheral device, such as a printer, is carried out as near to the time it is required as possible, whilst also trying to reduce the amount of time the user is aware that they are waiting for a search to be completed.

Once the communications link between the mobile telephone and the printer has been set up, the printer is able to print the SMS received by the mobile telephone upon the user's request. The action of searching for a printer immediately upon receipt of the SMS provides the advantage of utilising the battery to search for a printer at the point when it is predicted that a printer may be required.

It is well known in the art how to connect to and maintain connections with ad-hoc networks. Examples of such methods can be found in the following documents, which are incorporated herein by reference; Routing in Ad-hoc Networks of Mobile Hosts by David B. Johnson, Proceedings of the IEEE Workshop on mobile computing systems and applications, December 1994; Global State Routing: A New Routing Scheme for Ad-hoc Wireless Networks, Tsu-Wei Chen et al, Computer Science Department, University of California, Los Angeles, www.cs.ucla.edu; A Novel Distributed Routing

Protocol to Support Ad-hoc Mobile Computing, Chai-Keong Toh, IEEE 15th Annual International Phoenix Conf. Comp. And Commun., March 1996.

SECOND EMBODIMENT

A further embodiment of the present invention is discussed below.

A digital camera capable of taking photographs and storing these images within a digital format requires the user to normally download the stored pictures onto a computing device so he can print the photographs using an attached printer. Alternatively, the camera can directly download the pictures to a printing device.

A system of the present embodiment, as shown in Figure 7, has a digital camera 701, which has a wireless communication system such as an infrared or RF communication system, e.g. a Bluetooth system, discussed above. The communication link 703, using for example Bluetooth, is used to connect to a printing device 705.

A control system within the camera 701 determines when a photograph has been taken, and at that time instigates a search for a peripheral device, such as a printer 705, or a local wireless network within communication distance of the camera. If a local wireless network is subsequently found, a search is then carried out to find a suitable printing device, such as a printer on that network. Authorisation and identification techniques can be used as discussed in the previous embodiment to ensure security and privacy issues are not breached.

After the user has taken the photograph and is looking through the collection of photographs on the digital camera, an option is provided to the user to print the photograph on a printer 705 within the local wireless network, if such a printing device has been found, either via a local wireless network or within direct transmission range. This provides the same advantages as discussed above regarding the battery usage of the wireless communication device and the time required in finding a suitable peripheral device.

THIRD EMBODIMENT

Discussed below is a further embodiment of the present invention.

It is commonly known within the industry that it is necessary to make suitable backup copies of any data stored on a computing device. It is necessary for these backups to be carried out at regular intervals.

Figure 8 shows a further embodiment of the present invention, wherein a computing device 801 is connected via a wireless communication link 803 to a backup device 805. The present invention may be used to determine when a computer 801 may require a backup procedure to be executed and then to subsequently locate a suitable device 805 in the vicinity or located on a local wireless network to carry out the backup procedure. For example, the search for a backup device 805 may be implemented during the shut down procedure of a computer 801, or alternatively, if a certain file size has been exceeded a process may be instigated as discussed below.

When it is predicted that the computer 801 requires a backup such as a file size has exceeded a preset limit, a local wireless communications system attached to the computer will subsequently search for a backup device (peripheral device) on a local wireless network; the backup device 805 may be any type of backup device such as a backup disk or backup tapes. If a suitable backup device 805 is found, an option is given to the user to utilise this device so that a suitable backup may be made of the data on the computing device.

The computing device may be of any standard type such as for example, a Pentium ®III 450 MHz PC, or alternatively the device may be any laptop, notepad, tablet, desktop or floor-standing device and may run any operating system such as UNIX®, Windows, MacOS or Pocket PC provided these devices have a wireless communication system capability as previously discussed.

This embodiment utilises time more efficiently by searching for a backup device when the system predicts a backup may be required so that when the user requests the backup to commence, a search for a suitable backup device has already started.

FURTHER EMBODIMENTS

It will be clear to the skilled reader that various modifications and variations may be employed in relation to the above-described embodiments without departing from the scope of the present invention.

It will be clear to the skilled person that any embodiments described wherein the connections between the wireless communication device and the peripheral device are via a local wireless network, that the wireless connection between the devices may be direct and not pass through any other nodes. It will also be clear that any embodiments described wherein the wireless connections are direct that the connections may also be made via other nodes.

It will be clear to the skilled person that it may be necessary when communicating with devices via a wireless medium that suitable authorisation maybe required between the devices transferring data. For example, when backing up data to a suitable device, it will be a requirement that the backup device is secure from external influences and that it is possible to obtain the backup when required, particularly if the data is of a sensitive or commercial nature. Also, any printouts made to printers on a network would only be allowed to proceed if the printer is identified by the system, so that the user is aware of where the printout is occurring.

It will be clear to the skilled person that any number of wireless communication devices may be used in the present invention to detect a peripheral device when required. A wireless communication device is defined as any device capable of communicating with any other device over a wireless medium, and is no means limited to devices whose main purpose is communication. For example, a wireless communication device may be included in devices such as computer keyboards, computer mice, digital video

cameras, any audio visual wireless device, household appliances, car radios, car keys, video recorders, laptop computers, personal digital assistants (PDAs), phone and digital assistant combined (XDAs), security devices such as burglar alarms, utility service meter reading devices, electronic tagging systems, virtual reality systems, robotic systems, medical systems, aviation systems and military systems.

It will also be clear to the skilled person that any type of peripheral device that can communicate over a local wireless network and is intended as a destination for data sent from a data source may be used in the present invention. Examples of such devices are printers, fax machines, photocopiers, backup systems such as disks and tapes, computing devices such as personal computers and laptop computers, mobile phones, audio visual equipment, security systems including burglar alarms, any type of transport such as cars, buses, trains, aeroplanes etc., display monitors, satellite systems, environmental control systems, garage door systems, household appliances, entertainment systems, teaching aids and disabled persons aids.

It will also be clear to the skilled person that in the embodiments using SMS messages that the message does not have to be a new message received by the mobile telephone for the search for a printer to be instigated. For example, a search may be instigated if any message is stored within the in or out box of the mobile telephone system and the message editor is accessed by the user. Also, due to the numerous features available on mobile telephones and PDAs this invention also relates to accessing or receiving new, or storing

old data such as calendar and reminder entries or any other data entry within these devices.

It will also be clear to a skilled person that this invention can be used with e-mail as well as SMS messages, on any device with e-mail capabilities such as personal computers, laptop computers, XDAs and PDAs.

It will also be clear to a skilled person that instead of utilising a printer to print off data files any type of output device could be used, such as a visual display, for example for use during conferences.

It will further be clear to a skilled person that any of the devices used as wireless communication devices may also be used as the peripheral device.

It will be clear to a skilled person that detection of a printer in the local area may be established by protocols, such as Bluetooth Service Discovery, UPnP or NDIS. Communication with and data transmission to the printer may use protocols such as Bluetooth Printer Profile, Bluetooth LAN Profile and Internet Printer Profile (IPP), all of which are well known within the relevant art.

It will further be clear to the skilled person that communication links may be established using alternative infrared communication standards such as IrCOMM, or other alternative communication standards such as IEEE 802.11 WLAN and IEEE 802.15.4.

CLAIMS

1. A wireless communication device comprising a search means and a detection means, wherein the search means searches for a peripheral device when the detection means detects that the peripheral device is likely to be utilised by the wireless communication device.

2. A wireless communication device according to claim 1 wherein the detection means detects a predetermined condition indicating the likelihood of a request to utilise the peripheral device by a user of the wireless communication device before the user makes said request.

3. A wireless communication device according to claim 2 further comprising a user interface, wherein the user interface provides an option to utilise the peripheral device, only if a peripheral device is found.

4. A wireless communication device according to claim 3 wherein the peripheral device is not utilised merely because the detection means detects the predetermined condition.

5. A wireless communication device according to claim 4 further comprising a locating means and a route determination means, wherein the locating means locates a local wireless network and subsequently locates a

peripheral device on the network, and the route determination means determines a route through the network from the wireless communication device to the peripheral device.

6. A method of controlling a wireless communication device, including the step of:

searching for a peripheral device upon detection that the peripheral device is likely to be utilised by the wireless communication device.

7. A method according to claim 6 wherein the method further comprises the step of:

detecting a predetermined condition indicating the likelihood of the peripheral device being utilised by the user before the user utilises the peripheral device.

8. A method according to claim 7 wherein the method further comprises the step of:

providing an option on the user interface of the wireless communication device to utilise the peripheral device, only if a peripheral device is found.

9. A method according to claim 8 wherein the method further comprises the step of:

not utilising the peripheral device merely because the predetermined condition has been detected.

10. A method according to claim 9 wherein the search for a peripheral device further comprises the steps of:

locating a local wireless network;

locating the peripheral device on the network;

determining a route through the network from the wireless communication device to the peripheral device.

11. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device and the peripheral device communicate using radio frequency.

12. A wireless communication device or method according to claim 11 wherein the radio frequency communication uses Bluetooth technology.

13. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device and the peripheral device communicate using infra red.

14. A wireless communication device or a method according to any one of claims 11 to 13 wherein the communication between the peripheral device and the wireless communication device is on a second network and a first network is used for the wireless communication device to communicate with other wireless communication devices.

15. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device is a mobile telephone.

16. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device is a personal digital assistant.

17. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device is a laptop computer.

18. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device is a digital camera.

19. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the wireless communication device is a phone and digital assistant combined (XDA).

20. A wireless communication device or a method according to any one of claims 15, 16, 17 or 19 wherein the detection that a peripheral device is likely to be utilised occurs when a message editor is accessed on the wireless communication device.

21. A wireless communication device or a method according to any one of claims 15, 16, 17 or 19 wherein the detection that a peripheral device is likely to be utilised occurs when a new message is received by the wireless communication device.

22. A wireless communication device or a method according to any one of claims 15, 16, 17 or 19 wherein the detection that a peripheral device is likely to be utilised occurs if messages are stored in the memory of the wireless communication device.

23. A wireless communication device or a method according to any one of claims 15, 16, 17, 18 or 19 wherein the detection that a peripheral

device is likely to be utilised occurs when any current data is stored in the memory of the wireless communication device.

24. A wireless communication device or a method according to any one of claims 15, 16, 17 or 19 wherein the detection that a peripheral device is likely to be utilised occurs when a new calendar entry is entered on the wireless communication device.

25. A wireless communication device or a method according to any one of claims 15, 16, 17 or 19 wherein the detection that a peripheral device is likely to be utilised occurs when a data file is accessed on the wireless communication device.

26. A wireless communication device or a method according to any one of claims 15, 16, 17 or 19 wherein the detection that a peripheral device is likely to be utilised occurs when a data file's size exceeds a preset limit on the wireless communication device.

27. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the peripheral device is a printer.

28. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the peripheral device is a display device.

29. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the peripheral device is a data backup device.

30. A wireless communication device according to any one of claims 1 to 5 or a method according to any one of claims 6 to 10 wherein the peripheral device is a mobile telephone.

31. A software program stored on a storage medium to implement the method as claimed in any one of claims 6 to 10.

32. A wireless communication device as hereinbefore described with reference to the accompanying drawings.

33. A method as hereinbefore described with reference to the accompanying drawings.

ABSTRACT

A wireless communication device comprising a search means and a detection means, wherein the search means searches for a peripheral device when the detection means detects that the peripheral device is likely to be utilised by the wireless communication device.

Fig 1

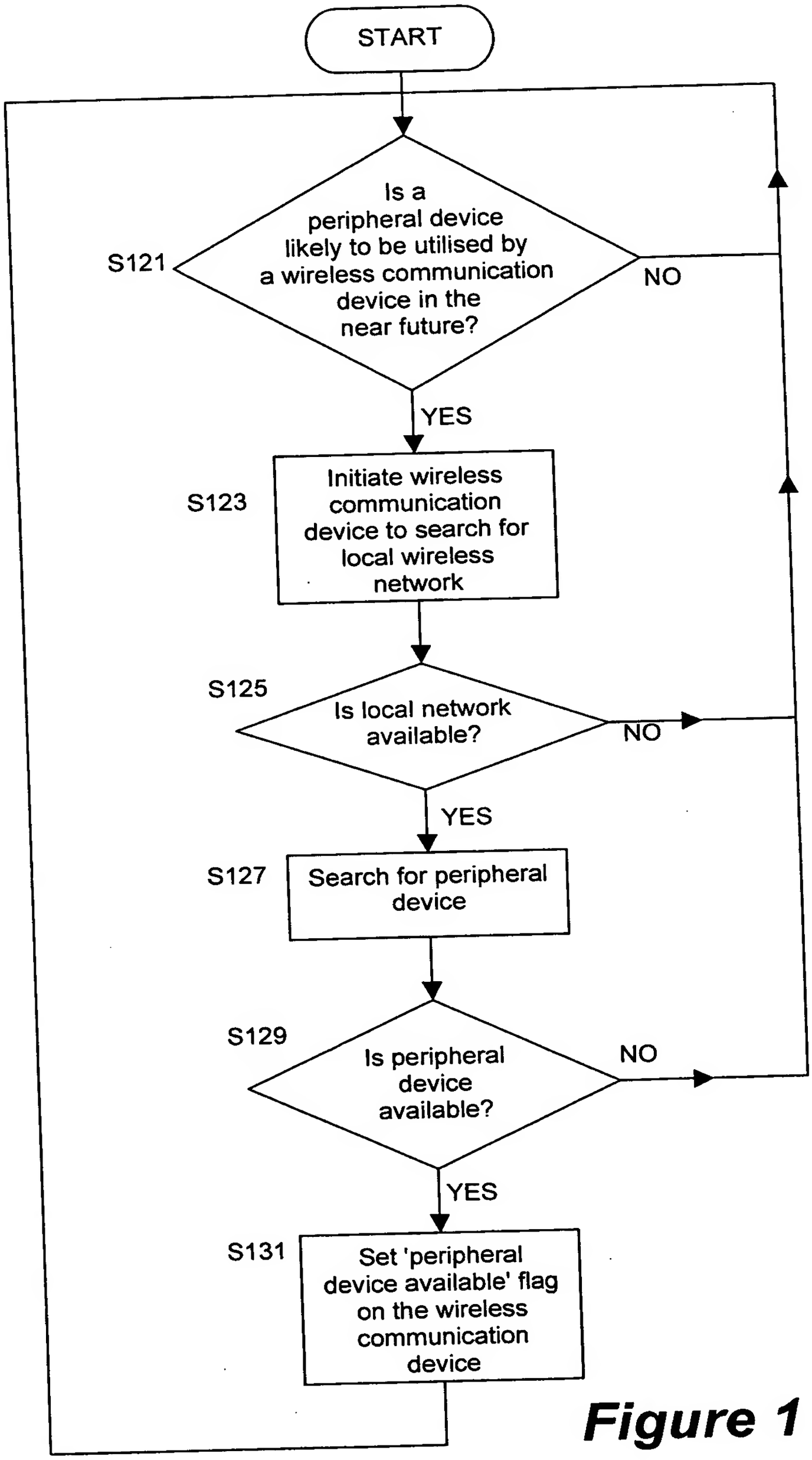
START
S121
Is a peripheral device likely to be utilised by a wireless communication device in the near future?
NO
YES
S123
Initiate wireless communication device to search for local wireless network
S125
Is local network available?
NO
YES
S127
Search for peripheral device
S129
Is peripheral device available?
NO
YES
S131
Set 'peripheral device available' flag on the wireless communication device

Figure 1

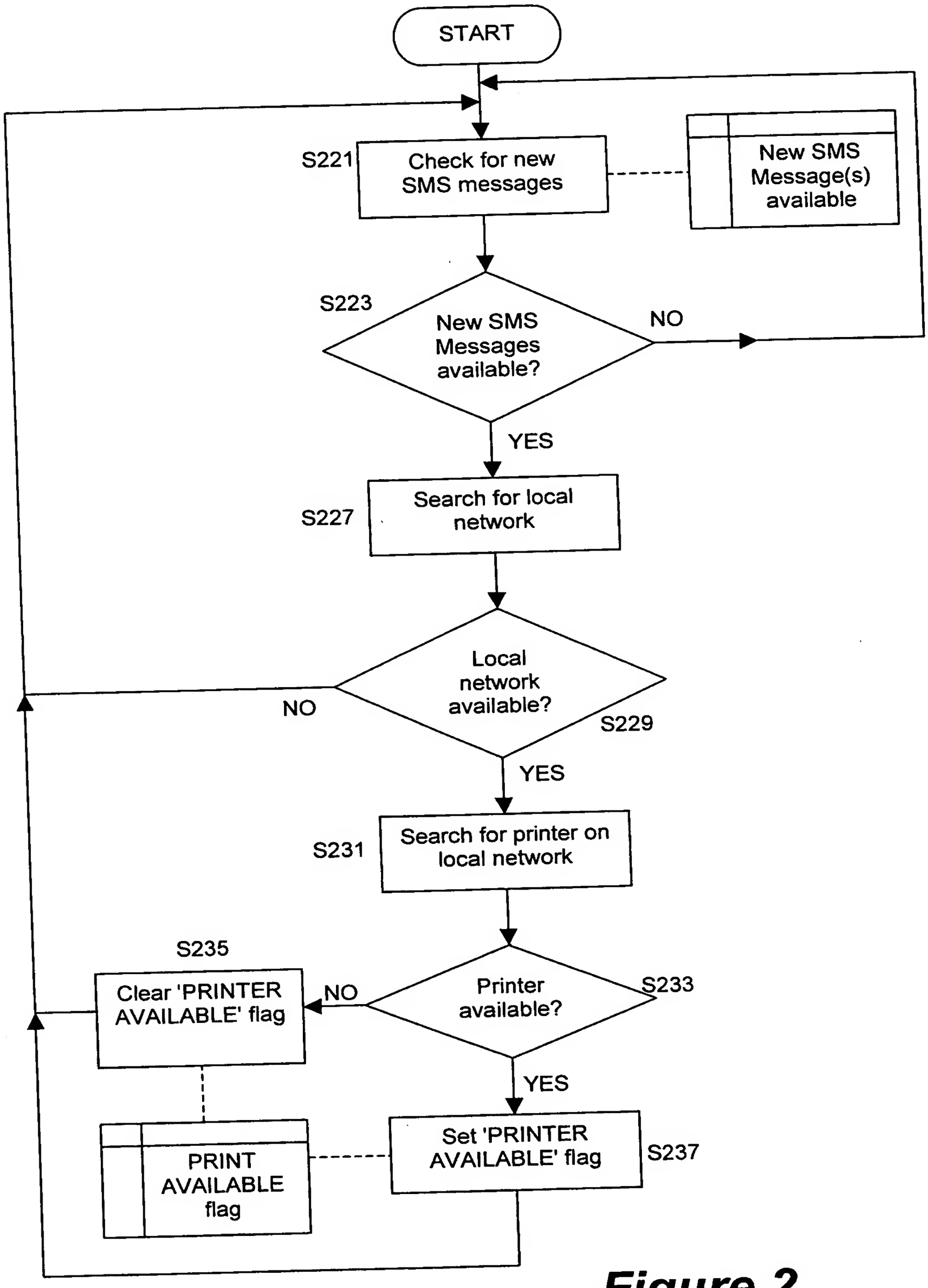
START
S221
Check for new SMS messages
New SMS Message(s) available
S223
New SMS Messages available?
NO
YES
S227
Search for local network
Local network available?
NO
S229
YES
S231
Search for printer on local network
S235
Clear 'PRINTER AVAILABLE' flag
NO
Printer available?
S233
YES
PRINT AVAILABLE flag
Set 'PRINTER AVAILABLE' flag
S237

Figure 2

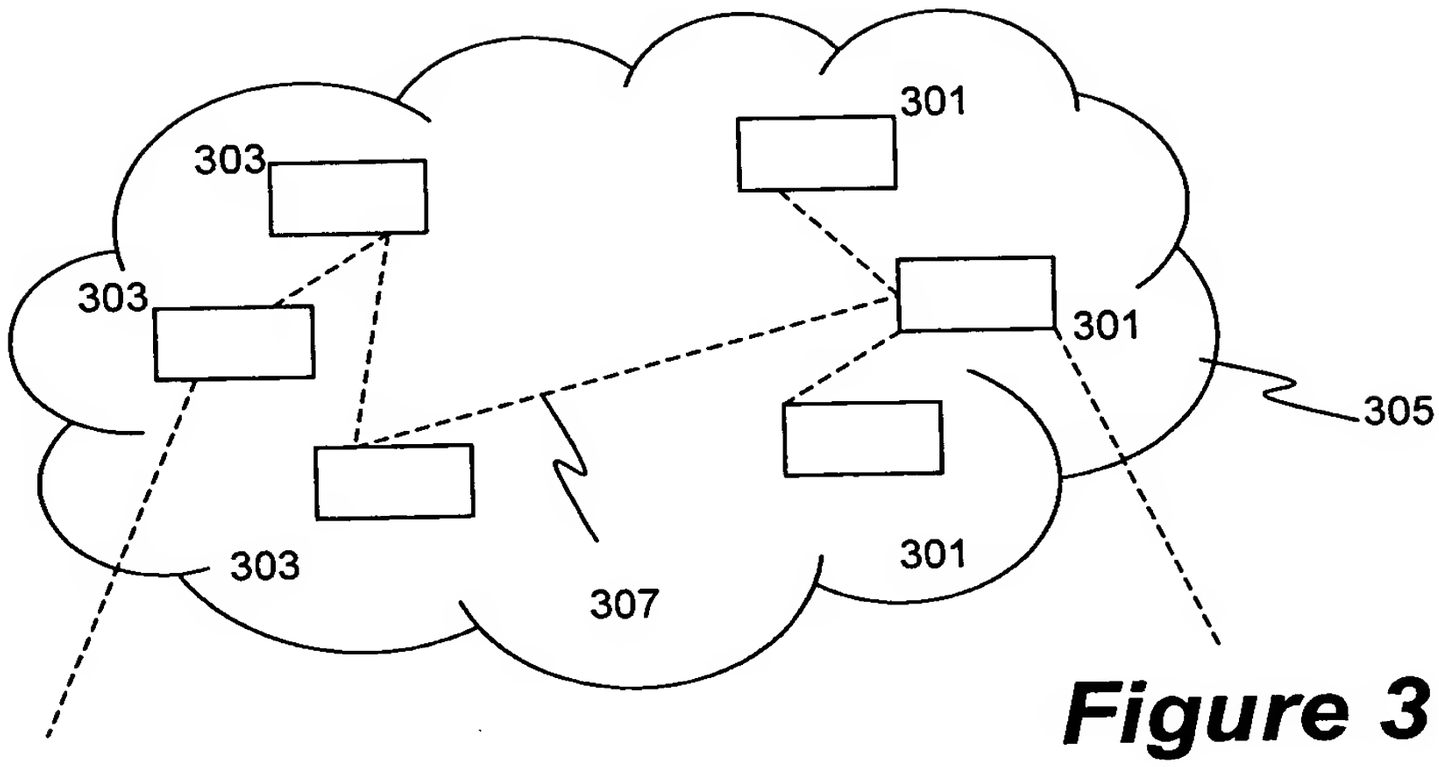

Figure 3

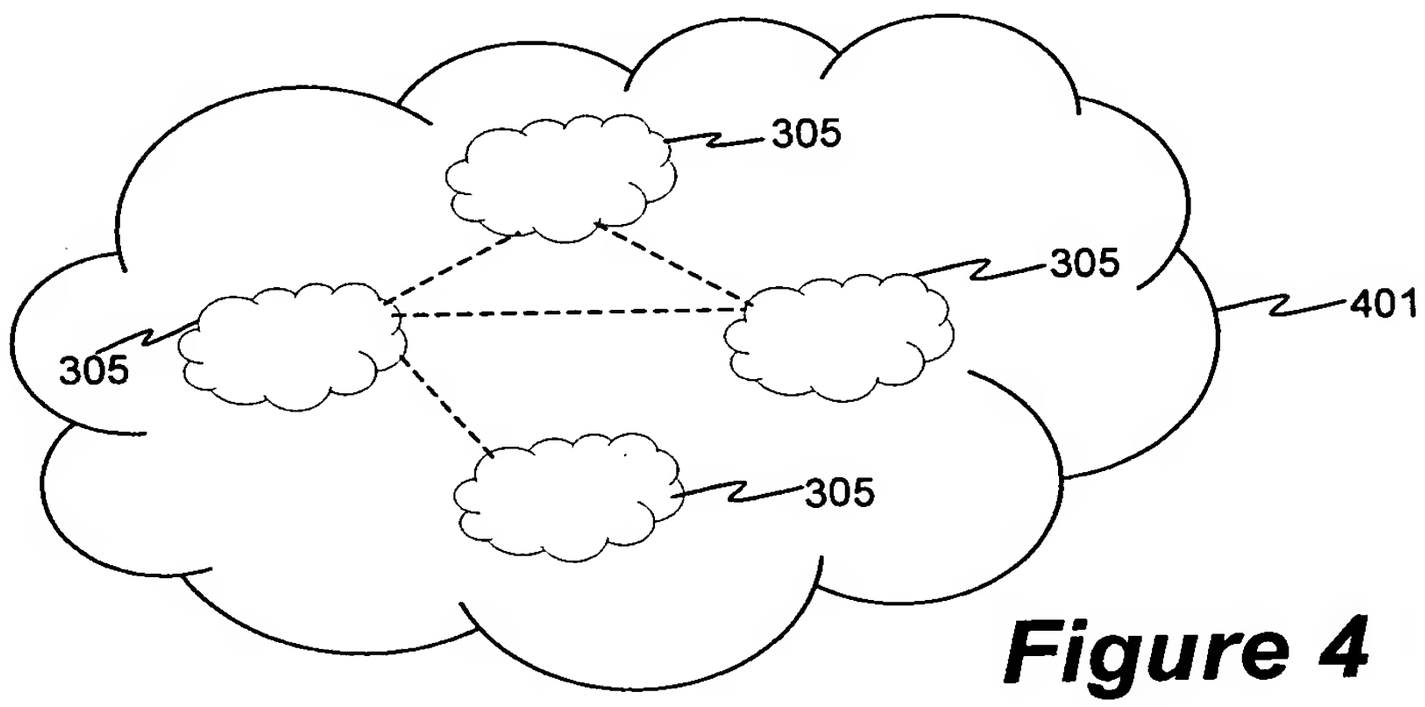

Figure 4

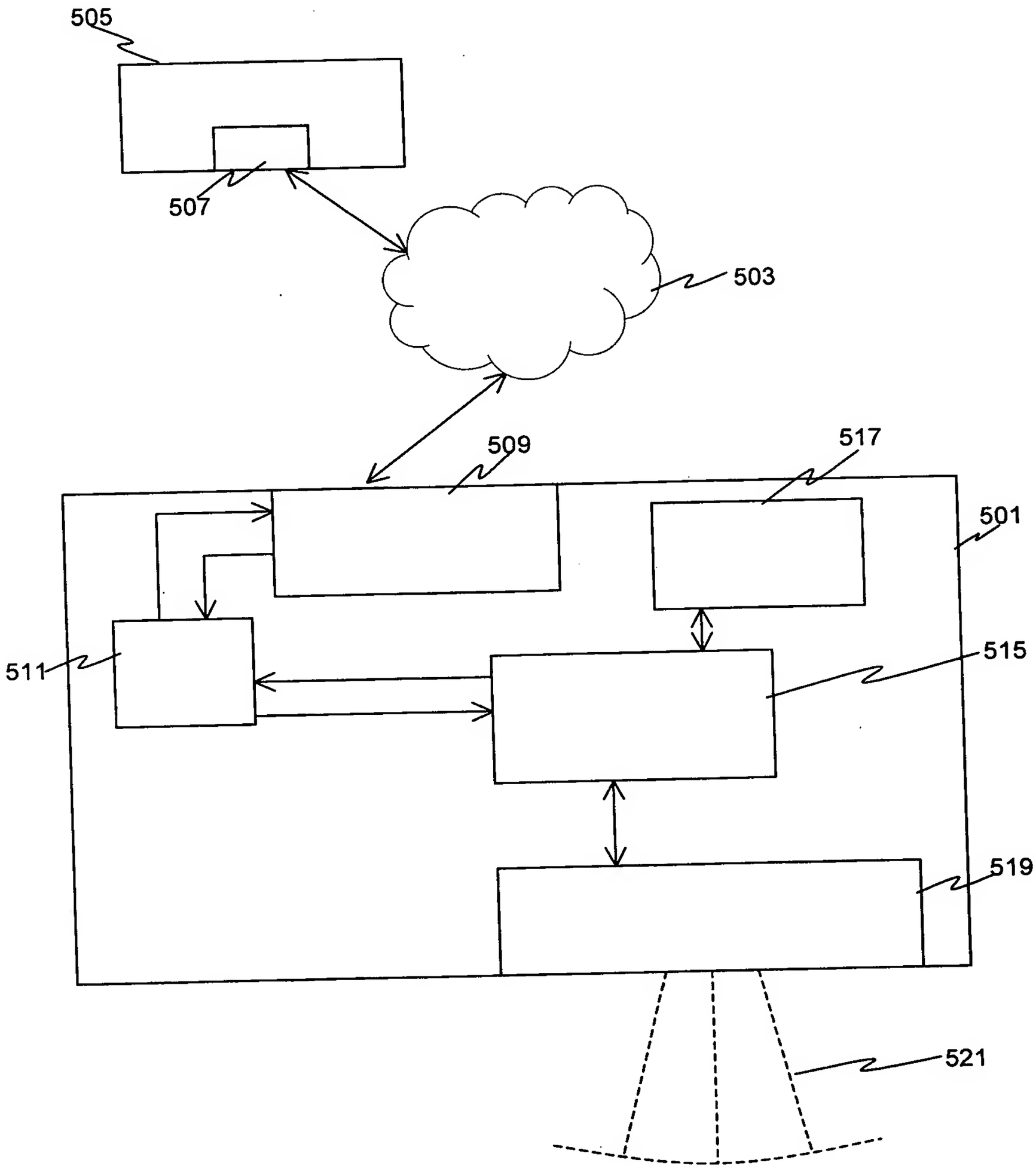

Figure 5

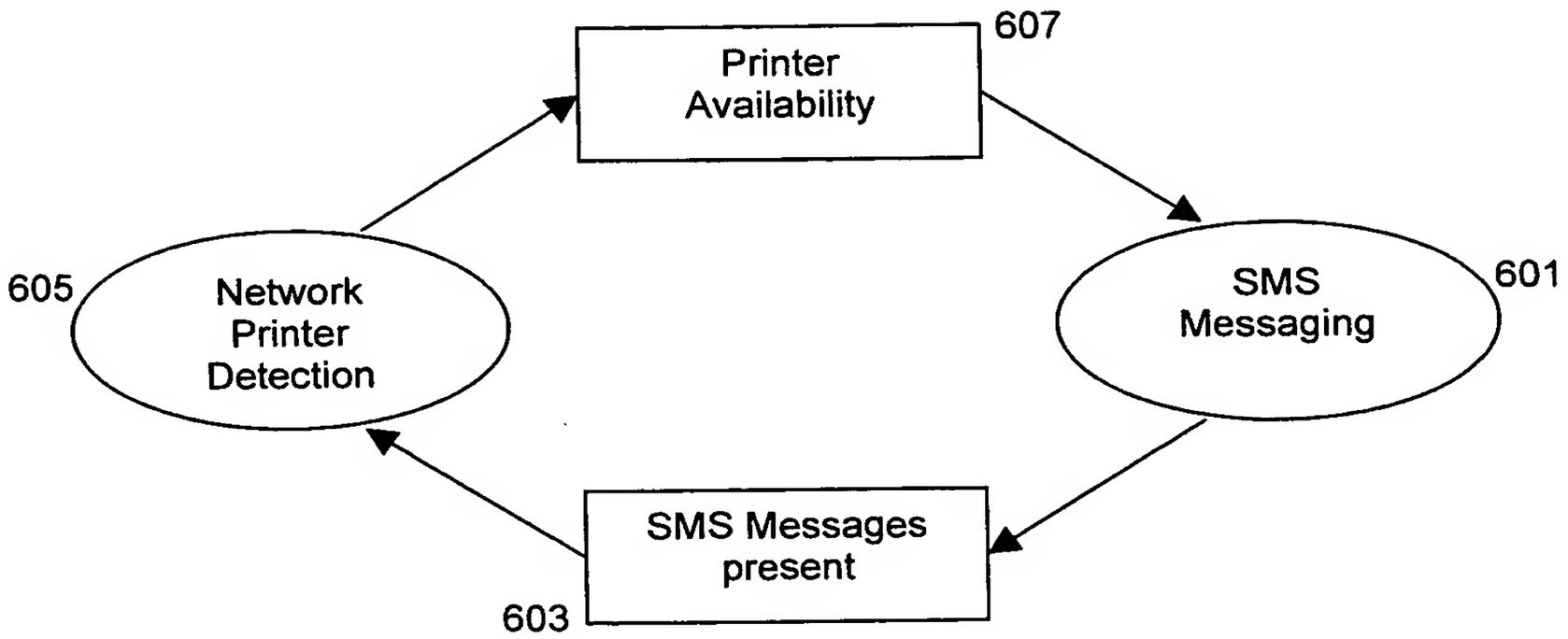
Printer
Availability
607
Network
Printer
Detection
605
SMS
Messaging
601
SMS Messages
present
603

Figure 6

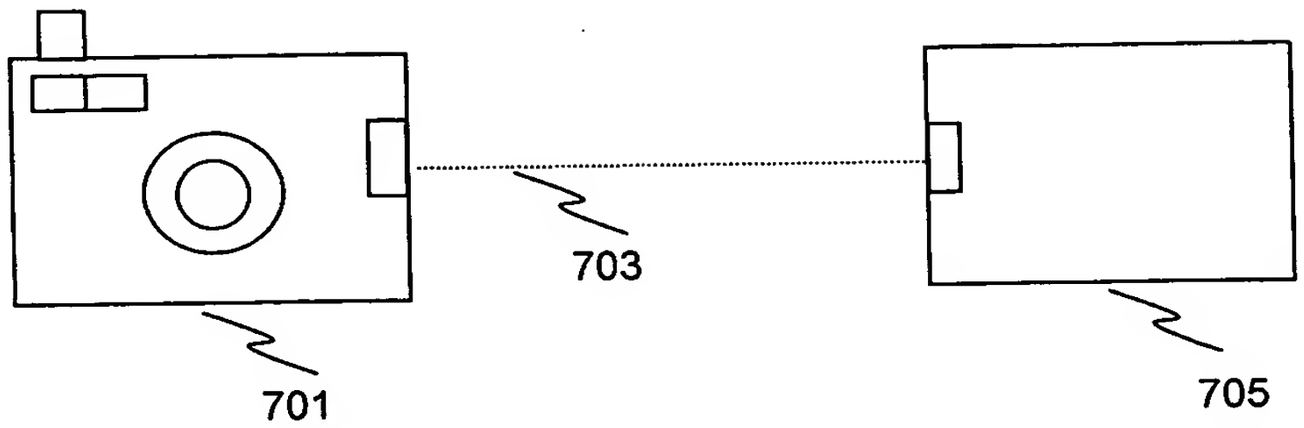

Figure 7

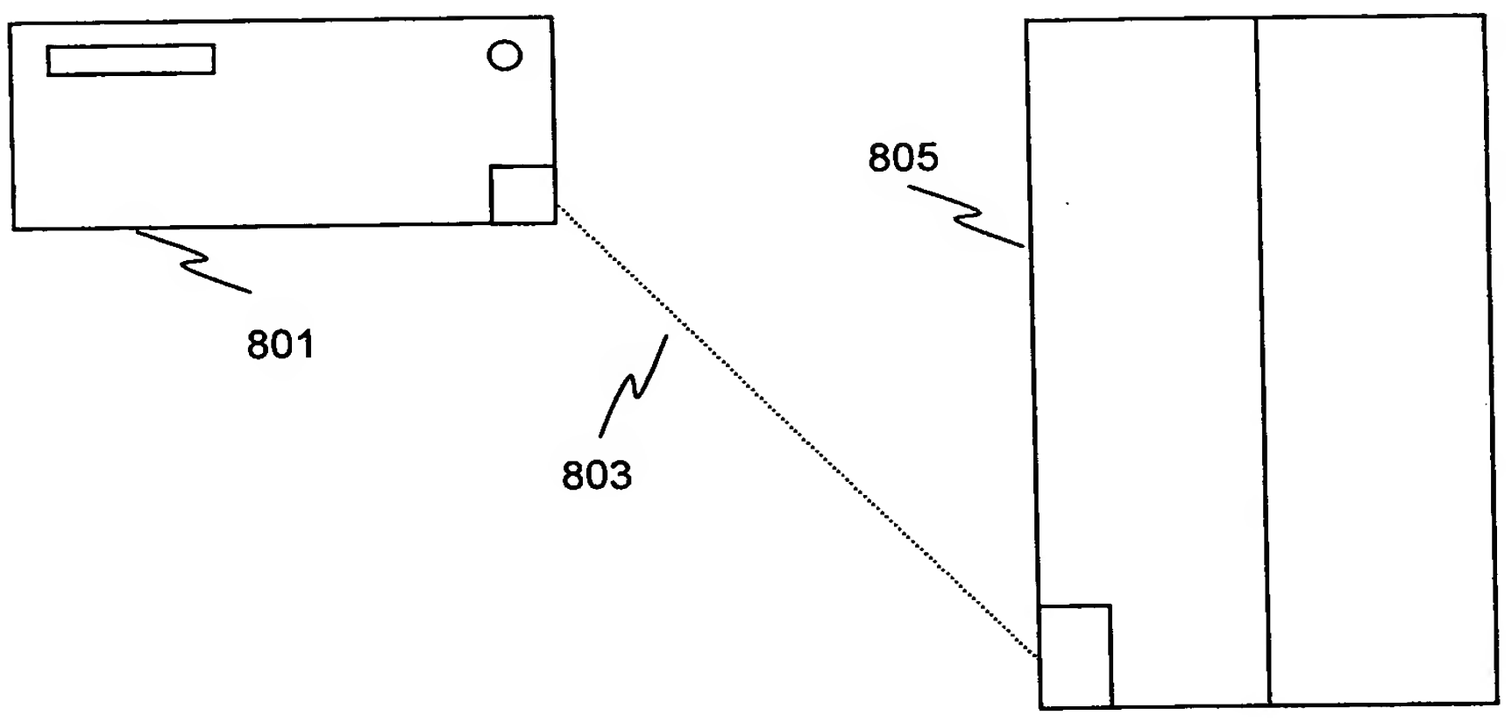

Figure 8